

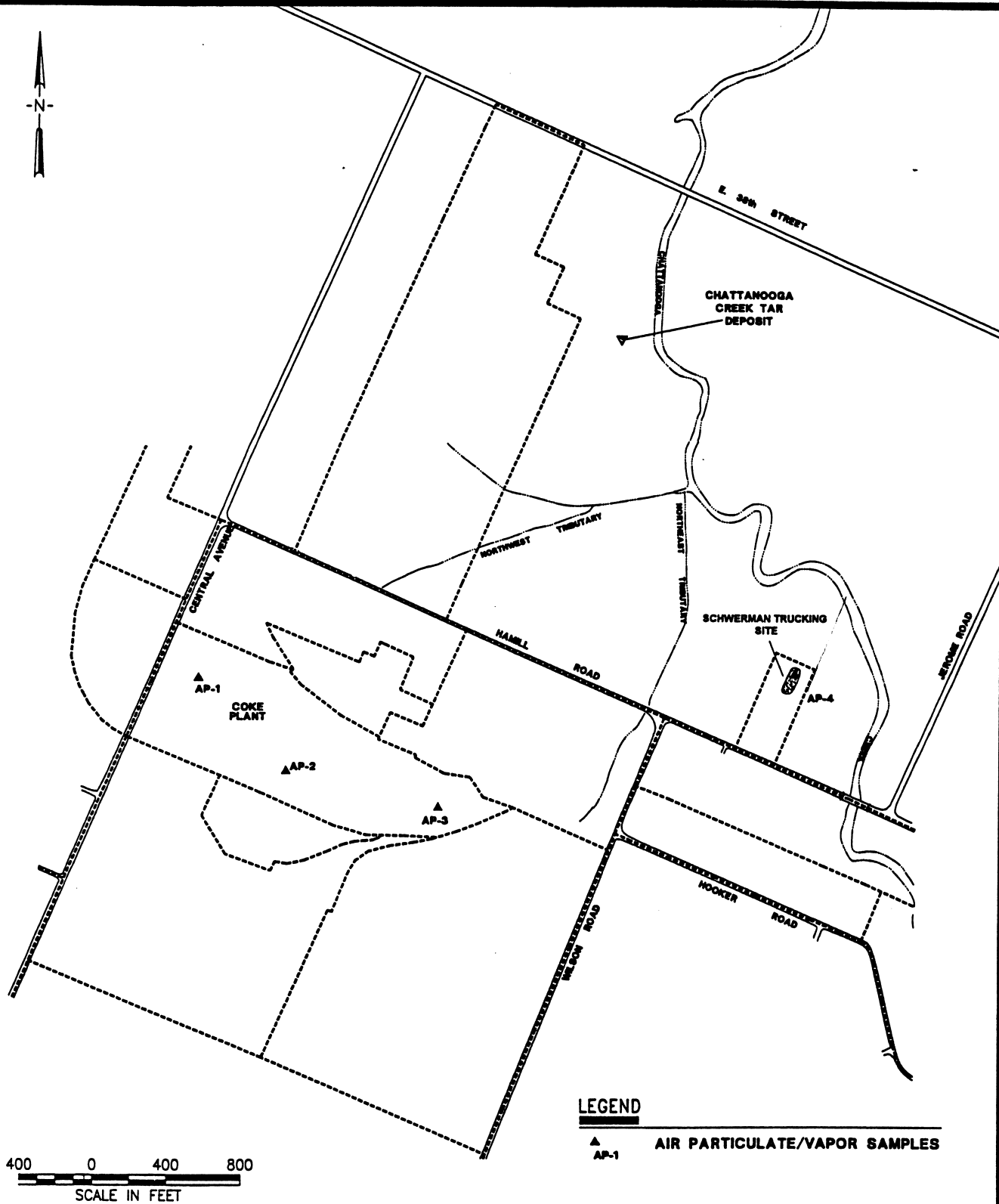
### **3.0 AIR INVESTIGATION**

#### **3.1 PURPOSE AND SCOPE**

Air sampling was conducted at both the coke plant and Schwerman Trucking Site source areas to characterize the nature of any air contamination in these areas which may be associated with the site. Note that air sampling was also planned for the Chattanooga Creek Tar Deposit source area for the same purpose, but this area was under water at the time this part of the RI was conducted. Thus, not only was this source area inaccessible, but air sampling would not be expected to produce meaningful results due to the likely suppression of any air emissions from the deposit by the standing water. Three air sampling stations were established at the coke plant and one air sampling station was established at Schwerman Trucking Site. The approximate locations of the air sampling stations are shown in **Figure 3-1**.

#### **3.2 METHODS**

One high volume air particulate sampler, containing a PUF cartridge and glass fiber filter, was installed at each of the four air sampling stations shown in Figure 3-1 to collect air particulate/vapor samples. The samplers were operated for 48 hours with one sample being collected from each sampler after 24 hours and after 48 hours of operation for a total of 8 air samples. The air samples were then sent to a subcontracted laboratory for complete PAH analyses via EPA Method 8270A (as specified in SW-846). The volume of air passing through the air samplers was calculated via the air sampler manufacturer's recommended procedure. All air samples collected were 24-hour composite samples and were collected according to the *Final Work Plan* (CDM Federal, 1995) for the Tennessee Products Site RI/FS and EPA's *Standard Operating Procedures and Quality Assurance Manual* (EPA, 1991).



## AIR SAMPLE LOCATIONS

### 3.3 SUMMARY

The calculated volumes of air passing through each air sampler for each 24-hour period sampled are presented in **Table 3-1**. The complete analytical results (chemical mass) for each air particulate sample collected are provided in Appendix E. The air concentrations for the chemicals analyzed were calculated by dividing the mass of the chemical in the sample by the volume of air passing through the sampler. The calculated concentrations of chemicals detected in the air samples are summarized in **Table 3-2**. Note that for the purpose of summarizing, only the detected chemicals and their calculated concentrations are presented in this summary table.

The results for both the coke plant and Schwerman Trucking Site source areas are very similar. As indicated in Table 3-2, several PAHs were measured in the air samples at each location. Two PAHs (naphthalene and 2-methylnaphthalene), however, dominated the air sampling results as the concentrations for these two PAHs were generally one to two orders of magnitude higher than the other PAHs detected.

Although Table 3-2 indicates that the air at the Tennessee Products Site is contaminated with a wide variety of PAHs, PAHs are commonly found in air, especially in urban/industrial settings. The results of the human health risk assessment to be performed for this site will determine whether the concentrations measured in the air at the Tennessee Products Site present a significant health risk.

**TABLE 3-1**

**AIR SAMPLE VOLUMES**  
**TENNESSEE PRODUCTS SITE**  
**CHATTANOOGA, TENNESSEE**

Sample Location	Volume of First Sample (M <sup>3</sup> )	Volume of Second Sample (M <sup>3</sup> )
AP-1	369.7	373.9
AP-2	329.3	332.7
AP-3	327.2	324.1
AP-4	389.3	370.9

M<sup>3</sup> - Cubic Meters

TABLE 3-2

**AIR SAMPLING SUMMARY  
TENNESSEE PRODUCTS SITE  
CHATTANOOGA, TENNESSEE**

Air Sampler Location: Sample Collection Date:	AP-1-A 11/16/95	AP-2-A 11/16/95	AP-3-A 11/16/95	AP-4-A 11/16/95	AP-1-B 11/17/95	AP-2-B 11/17/95	AP-3-B 11/17/95	AP-4-B 11/17/95
CHEMICAL								
<u>POLYAROMATIC HYDROCARBONS</u>								
Naphthalene	<b>185.5</b>	<b>265.5</b>	<b>149.1</b>	<b>245.3</b>	<b>356.7</b>	<b>379.6</b>	<b>213.9</b>	<b>309.7</b>
2-Methylnaphthalene	<b>93.6</b>	<b>91.7</b>	<b>71.3</b>	<b>124.4</b>	<b>150.6</b>	<b>138.9</b>	<b>98.4</b>	<b>130.6</b>
Acenanaphthylene	<b>7.2 J</b>	<b>6.5 J</b>	<b>5.1 J</b>	<b>6.9 J</b>	<b>14.0 J</b>	<b>14.2 J</b>	<b>8.5 J</b>	<b>9.9 J</b>
Acenaphthene	0.6 U	<b>5.2 J</b>	<b>5.0 J</b>	1.1 U	<b>4.3 J</b>	<b>11.0 J</b>	<b>5.6 J</b>	<b>3.3 J</b>
Fluorene	<b>4.9 J</b>	<b>5.8 J</b>	<b>4.6 J</b>	<b>3.6 J</b>	<b>7.4 J</b>	<b>9.0 J</b>	<b>6.3 J</b>	<b>3.9 J</b>
Phenanathrene	<b>9.3 J</b>	<b>10.8 J</b>	30.6 U	25.7 U	<b>13.9 J</b>	<b>19.1 J</b>	<b>11.8 J</b>	<b>8.9 J</b>
Anthracene	<b>1.2 J</b>	<b>1.3 J</b>	0.8 U	0.7 U	<b>1.6 J</b>	<b>2.6 J</b>	<b>0.7 J</b>	<b>1.1 J</b>
Fluoranthene	0.5 U	<b>2.1 J</b>	0.6 U	<b>1.4 J</b>	<b>3.5 J</b>	<b>4.1 J</b>	0.7 U	<b>2.1 J</b>
Pyrene	<b>2.1 J</b>	<b>2.4 J</b>	<b>1.9 J</b>	<b>1.8 J</b>	<b>4.5 J</b>	<b>4.7 J</b>	0.8 U	<b>2.8 J</b>
Benzo(a)anthracene	<b>0.9 J</b>	<b>1.1 J</b>	<b>0.7 J</b>	<b>0.8 J</b>	<b>1.4 J</b>	<b>2.1 J</b>	<b>1.8 J</b>	<b>1.5 J</b>
Chrysene	<b>0.6 J</b>	<b>0.6 J</b>	<b>0.7 J</b>	<b>0.5 J</b>	<b>1.3 J</b>	<b>1.6 J</b>	<b>1.1 J</b>	<b>1.3 J</b>
Benzo(b)fluoranthene	<b>0.5 J</b>	0.8 U	0.9 U	<b>0.5 J</b>	<b>2.0 J</b>	<b>3.5 J</b>	<b>2.0 J</b>	<b>2.2 J</b>
Benzo(k)fluoranthene	0.6 U	0.9 U	0.9 U	<b>0.7 J</b>	<b>0.8 J</b>	1.3 U	1.0 U	<b>0.9 J</b>
Benzo(e)pyrene	<b>0.5 J</b>	<b>0.5 J</b>	1.0 U	0.8 U	<b>1.1 J</b>	<b>1.5 J</b>	<b>1.4 J</b>	<b>1.4 J</b>
Benzo(a)pyrene	<b>0.4 J</b>	1.0 U	0.9 U	0.8 U	<b>1.1 J</b>	1.3 U	1.0 U	0.9 U
Indeno(1,2,3-cd)pyrene	1.2 UJ	1.7 UJ	0.8 U	0.7 U	<b>0.7 J</b>	<b>0.9 J</b>	<b>0.8 J</b>	0.8 U
Benzo(g,h,i)perylene	1.7 UJ	2.3 UJ	<b>0.7 J</b>	0.8 U	<b>1.2 J</b>	1.4 U	1.1 U	<b>1.3 J</b>

## Data Qualifiers:

U = The chemical was analyzed for but not detected. The value preceding the "U" is the minimum quantitation limit.

J = The qualitative analysis of the chemical is acceptable, but the value can not be considered as accurate. The value preceding the "J" is the estimated value.

UJ = The chemical was analyzed for, but not detected. The value is estimated for the minimum quantitation limit.

Concentrations presented in nanograms per cubic meter. Concentrations printed in bold italicized text are considered to reflect a valid detection of unnatural contamination.